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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,010	04/07/2004	Matthew J. Murray	U03-0134.65	3009
54494 7590 09/26/2006			EXAMINER	
MOORE AND VAN ALLEN PLLC FOR SEMC			LE, HUYEN D	
P.O. BOX 13706			ART UNIT	
430 DAVIS DRIVE, SUITE 500			PAPER NUMBER	
RESEARCH TRIANGLE PARK, NC 27709			2615	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/709,010		MURRAY, MATTHEW J.	
	Examiner		Art Unit	
	HUYEN D. LE		2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-18, 20-26 and 28-33 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 19 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/18/05&4/12/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 does not have further limitations of claim 1.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by An (U.S. patent 6,466,682).

Regarding claims 1 and 11, An teaches a method and apparatus of a transducer assembly that comprises a transducer (12, 13, 14, 15) to excite bending waves in an acoustic radiator (11) to produce an acoustic output, and a coupler (21) including rheological material. As shown in figures 3-6, the coupler (21) is mounted to the transducer (13, 14, 15) and adapted to be operatively connected to the acoustic radiator (11) to transmit bending wave energy from the transducer to the radiator (col. 3, lines 3-20, col. 4, lines 65-67 through col. 5, lines 1-14 and lines 36-48).

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-3, 6, 8, 10, 12, 18, 21-23, 26 and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over An (U.S. patent 6,466,682) in view of Murray (U.S. patent 6,434,237).

Regarding claims 10, 28 and 29, An teaches a method and apparatus of a transducer assembly that comprises a transducer (12, 13, 14, 15) to excite bending waves in an acoustic radiator (11) to produce an acoustic output, and a coupler (21) including rheological material. As shown in figures 3-6, the coupler (21) is mounted to the transducer (13, 14, 15) and adapted to be operatively connected to the acoustic radiator (11) to transmit bending wave energy from the transducer to the radiator (col. 3, lines 3-20, col. 4, lines 65-67 through col. 5, lines 1-14 and lines 36-48).

In addition to claim 10, An does not teach that the transducer for the radiator (11) includes a piezoelectric element. However, providing a driver for a speaker including an electromagnetic or a piezoelectric driver is known in the art.

Therefore, it would have been obvious to one skilled in the art to provide any type of transducers or drivers such as a piezoelectric driver for the radiator (11) of the An speaker depending on the applications that are required a small size for the speaker.

Regarding claims 2-3, 6, 10, 12, 21-23 and 28-32, An teaches the electromagnet (45) for generating a magnetic field and the fluid (21) having a predetermined degree of viscosity. An

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does not teach that the magneto-rheological fluid (21) has a controllable viscosity. However, providing the rheological material having a controllable viscosity is known in the art.

Murray teaches rheological material (28) that has a controllable viscosity in response to the magnetic field for changing the ability of the magneto-rheological fluid to flow (col. 3, lines 27-56).

Therefore, it would have been obvious to one skilled in the art to provide the magneto-rheological fluid, as taught by Murray, in the An speaker for better controlling the viscosity of the fluid. This would provide a better damping force in the system.

Regarding claims 8, 10, 18 and 26, An does not specifically teach the rheological material (21) that includes foam as claimed. However, providing a rheological material including foam impregnated with a rheological material is known in the art.

Murray teaches rheological material (28) that includes foam impregnated with a rheological fluid (col. 4, lines 5-6).

Therefore, it would have been obvious to one skilled in the art to provide any type of rheological material such as the material that includes foam impregnated with a rheological material, as taught by Murray, for providing a better damping member in the speaker.

Regarding claim 33, An teaches the transducer that is disposed in a mobile terminal (col. 1, lines 6-8). It is obvious that the transducer of An in view of Murray generates an energy field when the mobile terminal is on a call and reduces the strength of energy field when the mobile terminal is not on a call depending on the frequency signals that are applied to the voice coil in the speaker.

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6. Claims 7, 9, 13-17, 20, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over An (U.S. patent 6,466,682).

Regarding claims 7, 17 and 25, An does not teach that the transducer for the radiator (11) includes a piezoelectric element. However, providing a driver for a speaker including an electromagnetic or a piezoelectric driver is known in the art.

Therefore, it would have been obvious to one skilled in the art to provide any type of transducers or drivers such as a piezoelectric driver for the radiator (11) of the An speaker depending on the applications that are required a small size for the speaker.

Regarding claim 9, An does not specifically teach a closed vessel including a compliant body as claimed. However, An does not restrict the amount of the damping of the magneto-rheological fluid.

Therefore, it would have been obvious to one skilled in the art to provide a closed vessel including a compliant body for containing the rheological material of the An speaker for better controlling the damping force for the system.

Regarding claims 13-16, 20 and 24, An does not specifically teach that the acoustic radiator is at least in part transparent and includes a display or liquid crystal display as claimed. However, An does teach the speaker that is used in the cellular phones and providing an acoustic radiator for the display window is known in the art.

Therefore, it would have been obvious to one skilled in the art to provide the acoustic radiator of An to be used as a display window in the mobile phone that is made of transparent material for greater application.

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Allowable Subject Matter

7. Claims 4-5, 19 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN D. LE whose telephone number is (571) 272-7502. The examiner can normally be reached on 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SINH TRAN can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HL

September 17, 2006



HUYEN LE
PRIMARY EXAMINER